

## REMARKS

Reconstruction of the present application is respectfully requested. As this paper is submitted after final rejection, it is submitted that the amendments presented herein do not raise new issues or constitute new grounds of search.

In this paper, claims 8 and 9 have rewritten into independent form to include all limitations of base claim 5 and intervening claim 7, both now canceled. Of importance, amended claims 8 and 9 omit the limitation "which time is insufficient to completely oxidize the organic carbon", which when added in the applicants' prior paper, precipitated a rejection under 35 U.S.C. § 112, paragraph 1. Thus, the effect of the present amendment is to rewrite claims 8 and 9 in independent form, incorporating the limitations of intervening claims, while addressing the §112 paragraph 1 rejection. Thus, in view of the Examiner's prior indication in the March 31, 2003 office action that claims 8 and 9 would be allowable if rewritten in independent form, incorporating all limitations of the intervening claims, it is believed that allowance of these claims is in order.

Claims 6,10 and 11 are amended herein to depend from claim 8. New claims 12, 13 and 14, which parallel to claims 6, 10 and 11, depend from claim 9. Accordingly, it is submitted that these claims are in condition of allowance.

New claims 15 and 16 are respectively supported by claims 5, 7 and 8 and 5, 7 and 9. Please note that claims 15 and 16 differ from claims 8 and 9 as presented herein by omission of the phrase regarding the relation  $F \leq V/T$ , i.e. "a flow rate control means that controls the rate of flow F such that the rate of flow F at which the test liquid passes through said oxidizing process vessel, the volume V of the part of said oxidizing process vessel irradiated by the UV light that is upstream from said conductivity detecting means, and the irradiation time T

of the UV light have the relationship  $F \leq V/T$ ". It is believed that these claims distinguish over the prior art of record.

The specification has been amended at page 16 line 4 to change  $F > V/T$  to  $F < V/T$  and at page 16, lines 4-5 to change  $F < V/T$  to  $F > V/T$ . Support for this change can be found at page 16, line 2<sup>1</sup>, where it is indicated that the results reported in Figs. 5A-5C are intended to track the results reported in Figs. 4A-4C. See the order in which results are reported for  $F = V/T$ ,  $F < V/T$ , and  $F > V/T$  in Figs. 4A-4C, reported at pages 13-15, and the paragraph commencing at page 16, line 6, which compares Figs. 4A-4C to Figs. 5A-5C.

It is submitted that a person of skill in the art would recognize the amendments to specification, at page 16, submitted herein are directed to the correction of a typographical error, as opposed to the entry of new matter. From the aforecited passages of the specification, it would be evident to the skilled artisan that without the correction made herein, the comparison of Figs. 4A-4C to 5A-5C would be ineffective since the relationship of  $F$  to  $V/T$  prior to amendment for Fig. 4B, when compared to Fig. 5B, and Fig. 4C, when compared to Fig. 5C, would be at odds with each other.

The applicants request that the Examiner take special care to insure that the amendments at page 16, discussed above, are entered correctly. Patent office procedures require applicants to underline text added by amendment, so that the amendment to page 16 shows underlining under the "less than" and "greater than" signs. These amendments should not be read as "less than or equal to" or "greater than or equal to". Thus, the Examiner's special attention to this matter would be greatly appreciated.

New claims 15 and 16 are the same as claims 8 and 9 except that they exclude the

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<sup>1</sup> There it is indicated that "Similar to Fig. 4A to 4C, in Fig. 5A to 5C. . ."

paragraph comprising the relationship of  $F \leq V/T$ . Since the cited references do not disclose an oxidizing process vessel which has an inner tube comprising a material that substantially transmits UV light and an outer tube, and has a two-layer pipe structure in which the test liquid passes through the oxidizing vessel between the outer tube and the inner tube, wherein the inside of the outer tube is covered with a photocatalyst for promoting the UV oxidization of the organic carbon in the test liquid in said oxidizing process vessel, and said UV light source is disposed within said inner tube side (claim 8) or said inner tube is formed from the outer tube of said UV light source (claim 9), they are believed to be in condition of allowance, as this arrangement is not suggested by the cited references.

The rejection under 35 U.S.C. § 112 paragraph 1, precipitated because of the inclusion of the language "which time is insufficient to completely oxidize the organic carbon" still needs to be addressed, as this language is still present in claims 1-4. It is submitted that this language is supported by the specification, and accordingly, the rejection is transversed. At page 2, the bottom line, to page 3, line 10 of the specification, a known apparatus is discussed "that provides a measuring flow path that disposes first and second conductivity sensors before and after the UV light irradiating part, causes ultrapure water to flow continuously therethrough at a fixed rate of flow, and measures the organic carbon content based on the difference in the conductivity obtained by the first and second conductivity sensors. This apparatus assumes that if the rate of flow of the ultrapure water flowing through the UV light irradiation part is constant, then the amount of UV light that the ultrapure water receives per unit of volume is constant, which implies a constant degree of progress of the oxidizing reaction. In this case, because measurement is carried out while the oxidizing reaction due to the UV light is not complete and the ultrapure water is continuously flowing, the organic carbon content can be continually

measured." (Emphasis added.)

Furthermore, the specification at page 4, line 6 to line 20 describes a shortcoming of this apparatus "as described above, being able to measure without the oxidizing reaction having completed assumes that if the rate of flow of ultrapure water flowing through the UV light irradiation part is constant, then the amount of ultraviolet light received per unit of volume of ultrapure water is constant. If the rate of flow of ultrapure water flowing through the UV irradiation means increases, then the amount of UV irradiation per unit of volume of ultra pure water will decrease, and thus the difference in conductivity will become small. In contrast, if the rate of flow decreases, the amount of UV irradiation per unit of volume of the ultrapure water will increase, and thus the difference in conductivity will become large. This means that in the case in which the rate of flow of the ultrapure water flowing through the UV irradiation part changes, a measurement error will occur immediately. In order to avoid this type of error, the flow rate control of the ultrapure water must be carried out with extreme precision. As a result, the liquid conveyance system becomes complicated, and the cost of the system as a whole may become high." (Emphasis added.)

Furthermore, the specification at page 5, line 1 to 4, indicate that "in consideration of the above, the present invention has an object providing a method and apparatus for measurement of the organic carbon content that allows monitoring of the organic carbon amount substantially in real time, and at the same time, does not necessitate precision flow control." (Emphasis added.)

In contrast, the specification at page 5, lines 6 to 13, describes the present invention as follows: "In order to resolve the above-described problems, controlling the amount

of UV light impinging on a flowing test liquid by adjusting the time that the UV light source is lit was

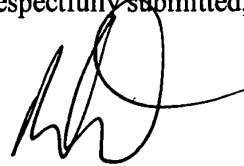
investigated. The results showed that if the liquid sample passes through the oxidizing processing vessel below a predetermined rate of flow [that is,  $F \leq V/T$ ] a portion of test liquid is present that has received the complete irradiation by UV light from the commencement to the extinguishing of the lighting of the ultraviolet light source, and in this case, the amount of irradiated UV light impinging on the test liquid depends on the time that the UV light source is lit [that is, it does not depend on the time that the test liquid passes through the region lit by the ultraviolet light]."

Thus, the subject matter of claim 1 in question here – "which time is insufficient to completely oxidize the organic carbon" . . . can evidently be premised on the basis that the UV light source is lit for a predetermined time, which time is insufficient to completely oxidize the organic carbon.

Thus, in view of the amendment presented herein, the prior art rejections have been mooted. Specifically, the 102(b) rejection of claims 5 and 11 based upon Sienkewicz is moot because claim 5 has been canceled. Claims 8 and 9, rewritten in independent form, incorporate limitations of claim 5, and are believed to be allowable because of the Examiner's indication of such in the March 31, 2003 office action. The same applies to the rejection of claims 5, 7, 10 and 11 under section 102(e), based on Thomas, or claim 6 under section 103(e) based on Thomas.

Wherefore, based upon the foregoing, it is submitted that the present application is in condition of allowance and a relatively early reply to this paper would be appreciated.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'RD' with a long horizontal stroke extending to the right.

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